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EXAMINER

CHAU, COREY P

ART UNIT	PAPER NUMBER
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2615

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	Application No. 09/393,463	Applicant(s) WOODS, WILLIAM S.	
	Examiner Corey P. Chau	Art Unit 2615	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 22 January 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).


4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See attached sheets.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____


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Response to Arguments

1. With respect to Applicant's argument on page 14, stating that "Applicant cannot find in Kandel a teaching or suggestion of a narrowband subaudible probe signal used to adjust an inhibiting filter", has been noted. However, the examiner respectfully disagrees. The filter 120 of Kandel operates in a similar manner to the filter adjuster 124 and inhibiting filter 134 disclosed in the application, wherein the signal generated by the inhibiting filter 134 is subtracted from the input signal 102, which the signal from filter 120 of Kandel operated in a similar manner to be subtracted from the input 112. Therefore Kandel meets the limitation disclosed in Claim 1. Furthermore, Kandel discloses **H(120) is chosen** to approximate $-H_{\text{sub.A}}/H_{\text{sub.B}}$; that is, $H(120)H_{\text{sub.B}} + H_{\text{sub.A}}$ is approximately 0. By matching H(120) to $H_{\text{sub.A}}$ and $H_{\text{sub.B}}$ in this manner one has $V(117) \approx -H(117)H(115A)V(112)$ at full gain (i.e., $K(116)=1$), in which case, the hearing aid output becomes approximately independent of acoustic environment functions $H_{\text{sub.A}}$ and $H_{\text{sub.B}}$. In summary, H(120) comprises the control circuit where the gain of $H(120)=0$ for first formant frequencies, $H(120)H_{\text{sub.B}} + H_{\text{sub.A}}$ approximate zero for the second formant frequencies and the gain and phase shift of H(120), at the frequency of the tone T, are selected to reduce the occurrence of oscillation, which clearly show "a teaching or suggestion of a narrowband subaudible probe signal used to adjust an inhibiting filter". See Fig. 4; column 11, lines 39-67.
2. With respect to Applicant's argument on page 15, stating that "Applicant respectfully submits that providing an input to a feedback eliminator does not disclose, teach, or suggestion adjusting the feedback eliminator" and further argue that,

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"Applicant submits that Miller generates a reference signal along a direct, non-feedback path to determine tonal quality and does not disclose, teach, or suggest sending a subaudible narrowband signal into a filtered signal to form a probe signal to probe a feedback path as recited in claim 2", has been noted. However, the examiner respectfully disagrees. Claim 1 recites "a method of processing audio signals, comprising inhibiting at least one feedback component of an input audio signal by adjusting a feed back-inhibiting filter using a narrowband subaudible probe signal", but does not clearly disclose in the claim how the narrowband subaudible probe signal is utilized to inhibit at least one feedback component, which the examiner can broadly interpret the limitation in any manner consistent with the limitation. Miller discloses the incoming program signal may be monitored for magnitude of a broadcast reference signal within an appropriate time window and/or compared to the frequency component magnitude before and/or after broadcast of the reference signal. Where the amplification system includes program material input from microphones, acoustic feedback of the broadcast reference signal can effect the overall transfer response.

Monitoring the incoming program signal for acoustic feedback of the reference signal in the program signal enables the automatic equalizer to make an appropriate adjustment when necessary. The feedback eliminator 62 is a unit, circuit, or algorithm which eliminates unwanted acoustic feedback, sometimes called howl. An example of a suitable feedback eliminator is disclosed in U.S. Pat. No. 5,245,665. **The feedback eliminator 62 monitors the program signal from the mixer 24, identifies any frequencies which become loud because of acoustic feedback, and**

attenuates identified howl frequencies to eliminate the acoustic feedback. When the automatic equalizer is digital, both equalizer 20 and feedback eliminator 62 can be formed by algorithm(s) in the same microprocessor or DSP. It is implicit that the narrowband reference signals generated in automatic equalizer is provided to the input of the feedback eliminator, as shown in Fig. 3, which the signals from the feedback eliminator is fed to power amplifiers in which speakers 36 broadcast the signal from power amplifiers 34. See Figs. 1 and 3; column 6, line 29 to column 7, line 20; column 11, lines 12-37.

3. With respect to Applicant's argument on page 15, stating that "Applicant submits that Miller does not teach or suggest a probe generator to generate a probe signal to probe a feedback path with a narrowband subaudible audio probe signal", has been noted. However, the examiner respectfully disagrees. Miller does disclose a system having a detector to detect undesired feedback in an input signal and a notch filter to filter a processed signal, wherein the notch filter provides a filtered signal and the processed signal is provided by processing the input signal, see Figs. 1 and 3-4; column 6, lines 30-61; column 7, lines 9-20. The feedback eliminator 62 is a unit, circuit, or algorithm which eliminates unwanted acoustic feedback, sometimes called howl. An example of a suitable feedback eliminator is disclosed in U.S. Pat. No. 5,245,665. **The feedback eliminator 62 monitors the program signal from the mixer 24, identifies any frequencies which become loud because of acoustic feedback, and attenuates identified howl frequencies to eliminate the acoustic feedback. When the automatic equalizer is digital, both equalizer 20 and feedback eliminator 62**

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can be formed by algorithm(s) in the same microprocessor or DSP. It is implicit that the narrowband reference signals generated in automatic equalizer is provided to the input of the feedback eliminator, as shown in Fig. 3, which the signals from the feedback eliminator is fed to power amplifiers in which speakers 36 broadcast the signal from power amplifiers 34. See Figs. 1 and 3; column 6, line 29 to column 7, line 20; column 11, lines 12-37.

4. With respect to Applicant's argument on page 16, stating that "Applicant submits that a feature being allegedly recited in a reference or several references does not make the feature well-known such that the feature may be deemed to be obvious by Official Notice. Further, Applicant submits that the occurrence of the alleged use of a subaudible signal in a reference other than a reference cited with respect to a rejection does not make obvious the use of a subaudible signal in the cited reference. Applicant submits that the Examiner has not properly combined one or more of the references, cited which respect to the Official Notice, with the primary reference in a rejection of claims in the instant application. To merely state a conclusory remark that a feature would have been obvious, without combining references, improperly circumvents the requirements stated in the M.P.E.P., as noted above, that the claimed invention must be considered as a whole, that the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination, that the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention, and that obviousness is determined using a reasonable expectation of success standard", has been noted. However, the examiner respectfully

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disagrees. USPN 5506910 to Miller et al. for example, discloses a narrow band short duration low magnitude tones inserted into program signals being broadcast without distorting or producing any noticeable effect on the broadcast program (Figs. 1 and 3-4; column 2, lines 46-58), therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Finn with the teaching of Miller to provide a subaudible narrowband probe signal in order to reduce undesired signals heard by the user. USPN 6594365 to Eatwell for example, discloses a psycho-acoustical model is used to calculate a spectral masking threshold, below which added noise is substantially inaudible (Figs. 2), therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Finn with the teaching of Eatwell to provide a subaudible narrowband probe signal in order to reduce undesired signals heard by the user. USPN 6347148 to Brennan et al. for example, discloses a noise source is passed through a shaping filter, which is controlled with the control signal, to generated frequency-shaped noise, which is inaudible to someone hearing the output (abstract; Fig. 1), therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Finn with the teaching of Brennan to provide a subaudible narrowband probe signal in order to reduce undesired signals heard by the user. The references is added only as directly corresponding evidence to support the prior common knowledge finding, and it does not result in a new issue or constitute a new ground of rejection.

5. With respect to Applicant's argument on pages 16-17, stating that "Finn appears to remove detected feedback without probing the feedback path. As a result of the void

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in Finn regarding probing a feedback path, Applicant submits that Finn does not form a probe signal to probe a feedback path and further that Finn does not teach or suggest forming a probe signal as recited in claim 2", has been noted. However, the examiner respectfully disagrees. Finn discloses an acoustic feedback tonal canceler is provided, removing tonal noise from the output of the microphone to prevent broadcast thereof by a remote but acoustically coupled loudspeaker. Feedback tonal canceler (390,420) includes a summer (392,422) having an input (394,424) from microphone (36,38), an input (396,436) from feedback detector (398,428) and tone generator (400,430) supplied through adaptive filter model (402,432) (i.e. sending a narrowband signal having a first bandwidth into the filter signal to form a probe signal to probe a feedback path having a second bandwidth)(Fig. 8), and an output (404,434) to loudspeaker (34,32) through summer (90,106). Model (402,432) has a model input (406,436) from tone generator (400,430), a model output (408,438) supplying a correction signal to summer input (396,426), and an error input (410,440) from summer output (404,434) (Fig. 8; column 2, lines 54-57; column 15, lines 4-36).

6. With respect to Applicant's argument on page 18, stating that "Applicant submits that Stott does not teach or suggest a probe signal that is a delta function. Stott recites in paragraph [0022] and other sections "an auto-correlation function which is substantially a delta function." Applicant submits that an auto-correlation function being substantially a delta function does not per se teach or suggest that a signal having such an auto-correlation is a delta function or is narrowband. According to Stott at paragraphs [0133] and [134], "[i]n order for the auto-correlation function of the signal to

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be as close as possible to a delta function, $X(0)$ should be as flat as possible across the frequency spectrum," which indicates that the signal is broadband. Therefore, Applicant submits that Stott does not teach or suggest a narrowband signal as proposed by the Examiner.", has been noted. However, the examiner respectfully disagrees. Applicant's has not clearly define a narrowband probe signal, which the examiner can broadly interpret that limitation in any manner consistent with the limitation, such as a noise signal substantially a delta function, which reads on a narrowband probe signal.

7. With regards to Applicant's arguments starting on page 18, the examiner has address the arguments in the previous Office Action and above.